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Future Financial Resources of the Elderly: A View of Pensions, Savings, Social Security, and Earnings in the 21st Century

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Future Financial Resources of the Elderly: A View of Pensions, Savings, Social Security, and Earnings in the 21st Century

A Report of the
Advisory Council
on Social Security

December 1991
Washington, DC

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PREFACE

This report, *Future Financial Resources of the Elderly*, was prepared for the Advisory Council on Social Security by Lewin/ICF based on its pension and retirement income simulation model (PRISM). Early results were presented to the Advisory Council in April 1991 for its discussion of the role of Social Security in the overall retirement income system. David Kennell and Lisa Alecxih of Lewin/ICF presented the results and prepared this report. The assumptions used in the model, the simulation results, and drafts of this report were reviewed by Virginia Reno and Michael Zambonato of the Advisory Council staff. Staff of the Office of Research and Statistics (ORS) of the Social Security Administration (SSA), under the direction of Peggy S. Trout, met with the Advisory staff and Lewin/ICF to discuss the model assumptions and methods. Helpful comments were received from Jan Olson, David Pattison, and John R. Woods of ORS and Stephen C. Goss of the Office of the Actuary, SSA.

I appreciate the contributions of all who helped with this project. In particular, I want to acknowledge the expertise and responsiveness of David Kennell and Lisa Alecxih, as they, ultimately, are responsible for the quality of this report.

Ann D LaBelle, D.D.S.

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EXECUTIVE SUMMARY

Income Today

Examining retirement income policy options requires an understanding of the expected level of financial resources of the elderly in the future under current law.[1] Comparing the financial resources of today's elderly to the financial resources of the elderly in 30 years highlights the following two significant findings:

- the economic status of the elderly is expected to improve; and
- with the exception of pensions, the roles of different income sources will remain similar to those for the elderly today.

Currently, the primary sources of income for elderly families are Social Security benefits and asset income. (See table ES.1.) Over 90 percent of elderly families receive Social Security benefits, with the median level being $7,590. Social Security is the single largest source of income for elderly families, accounting for a little over 40 percent of total income.

Asset income makes up the second largest share of income for the elderly; it provides nearly one-quarter of aggregate income. (See table ES.1.) Income from assets makes up a much larger share of the total income of moderate

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[1] The estimates of income and wealth presented in this paper are based on results from the Pension and Retirement Income Simulation Model (PRISM). PRISM is a microsimulation model which simulates the economic status of the elderly during the period 1988 to 2018. The model simulates income from both public and private sources, as well as home equity and financial asset holdings.

TABLE ES.1

CURRENT INCOME OF THE ELDERLY, 1988

(in 1988 dollars)

Income Source	Percent of Elderly Families with Income Source	Median Income from Source for Families with Source	Share of Aggregate Income Contributed by Source
Social Security	92%	$7,590	41%
Private Pensions	40%	$4,730	17%
Earnings	19%	$11,940	17%
Asset	73%	$890	24%
Other	11%	$2,000	1%
TOTAL	100%	$11,750	100%

SOURCE: Lewin/ICF estimates based on the Pension and Retirement Income Simulation Model (PRISM), 1991.

and higher income elderly families than it does for lower income families. The share of income from assets for higher income elderly families (those with income at or above 300 percent of the poverty level) is over six times as high as the share for lower income families (those with income less than 150 percent of the poverty level) (32 percent versus 5 percent).

Income in 2018

Both the income and wealth of the elderly are expected to increase over the next 30 years. PRISM simulations indicate that family incomes of the elderly are expected to increase by almost 50 percent in real terms (1988 dollars), going from an average of $18,220 in 1988 to $26,780 in 2018. (See table ES.2.) Median family income is expected to increase by nearly 60 percent over this 30-year period.

Poverty rates, a measure of the relative proportion of the poorest elderly over time, are expected to decline to approximately 7 percent by 2018 under the assumptions used here.[2] This continues a trend which began in the 1960's, when the percentage of non-institutionalized elderly persons in poverty fell from over 35 percent in 1959 to 29 percent in 1966 to 12 percent in 1990.[3]

According to table ES.2, the 1.3 percent annual real increase in the average income of elderly families will be higher than the assumed increases in real wages over the period (approximately 1.1 percent annually). The receipt of income from more sources—particularly pension income, which more elderly families will receive—is the driving factor behind a rate of increase greater than that of real wages. However, the increased role of pensions in the income of the elderly is not guaranteed because of the many uncertainties about pensions.

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[2] Estimates of the number of persons in poverty based on PRISM tend to be somewhat higher than estimates developed by the Census Bureau due to the definitional differences in forming family units and the inclusion of institutionalized persons in the PRISM estimates.

[3] Committee on Ways and Means, U.S. House of Representatives, *Background Material and Data on Programs Within the Jurisdiction of the Committee on Ways and Means*, Washington, D.C., March 1991, p. 1102 and Bureau of the Census News Release, September 1991. The 12 percent of elderly below poverty in 1990 actually reverses the downward trend, rising from 11.4 percent in 1989.

TABLE ES.2

AVERAGE AND MEDIAN ELDERLY FAMILY INCOME, 1988 AND 2018

(in 1988 dollars)

	1988	2018	Percent Change	Annual Percent Change
Average Family Income	$18,220	$26,780	47%	1.3%
Median Family Income	$11,770	$18,760	59%	1.6%

SOURCE: Lewin/ICF estimates based on the Pension and Retirement Income Simulation Model (PRISM), 1991.

It is important to keep in mind that the projections presented here attempt to predict the behavior of retirees 30 years in the future based on the best available knowledge of relevant behavior today and a large set of assumptions about the economy. To the degree that these assumptions are not met, or that future generations behave differently than the current retired population, the results of the analysis will differ.

INTRODUCTION

Examining retirement income policy options requires an understanding of the expected level of financial resources of the elderly in the future under current law. In this paper, we present estimates of the expected level of income and assets of elderly families in 2018 under current policy. We also compare these estimates to the level of financial resources of elderly families in 1988. The discussion highlights key factors that influence the expected changes in future income and assets of the elderly.

Methodology and Key Assumptions

The estimates of income and wealth presented in this paper are based on results from the Pension and Retirement Income Simulation Model (PRISM). PRISM is a microsimulation model which simulates the economic status of the elderly during the period 1988 to 2018. The model simulates income from both public and private sources, as well as home equity and financial asset holdings.

In addition to simulating income and assets under current policy, PRISM was designed to incorporate assumed changes in public policy or changes in the economy that would affect the income of the elderly. The model is capable of simulating changes in retirement income programs (like Social Security, employer pensions, or individual retirement accounts), changes in labor force participation rates, and changes in other key economic variables.

EXHIBIT 1

ASSUMED CHANGES IN CONSUMER PRICE INDEX AND REAL EARNINGS DIFFERENTIALS

Calendar Year	Annual Change in Consumer Price Index	Real Earnings Differential[a]
1979	11.4%	-1.6%
1980	13.4	-4.4
1981	10.3	-0.6
1982	6.0	0.5
1983	3.0	2.0
1984	3.5	3.7
1985	3.5	0.8
1986	1.6	2.7
1987	3.6	1.4
1988	4.0	1.1
1989	4.8	-1.3
1990	5.3	-0.4
1991	4.9	-1.2
1992	4.0	1.5
1993	4.0	1.5
1994	4.0	1.3
1995	4.0	1.5
1996	4.0	1.4
1997	4.0	1.4
1998	4.0	1.3
1999-2004	4.0	1.3
2005 and later	4.0	1.1

[a] The real earnings differential is the difference between wage growth and the change in the CPI.

SOURCE: Alternative II assumptions from the *1991 Annual Report of the Board of Trustees of the Federal Old Age and Survivors Insurance and Disability Insurance Trust Funds*, April 1991.

Results from the model enable analysts to examine the distribution of income and assets of elderly families by socioeconomic characteristics such as age, sex, marital status, and income level. It is thus possible to identify not only the average level of expected changes in income for any policy option or alternative economic assumptions, but also the groups of persons most likely to be affected by the changes.

The estimates presented here reflect current law. The economic assumptions are based on the middle-of-the-road assumptions (Alternative II) used by the Board of Trustees in its 1991 Report on the Old Age, Survivors and Disability Insurance (OASDI) trust funds.[1] The key long-run assumptions include:

- increases in the Current Price Index (CPI) of 4.0 percent annually after 1991 (see exhibit 1);
- increases in real wages of 1.1 percent annually after 2004 (see exhibit 1); and
- an average annual interest rate of 6.3 percent.

The estimates presented for the short run (1988) are also based on model results. They differ somewhat from estimates based on a commonly used source of data on the income of American families, the Current Population Survey (CPS), because of the following factors:

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[1] Alternative II assumptions from the *1991 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds*, Washington, D.C.: Social Security Administration, April 1991.

- PRISM includes persons in nursing homes, whereas the CPS includes only the noninstitutionalized population;

- the results from PRISM are for "elderly units" rather than families, which are used in CPS estimates. The key distinction between elderly units and families is that elderly units consider only the economic resources of an elderly couple (e.g., at least one spouse is age 65 or over) or single person, while family measures include the economic resources of all family members. Thus, in the PRISM model, an elderly widow living with her daughter would have only the widow's income counted as an income source, whereas in the CPS, family income would include the elderly widow's and daughter's incomes. In this paper, further references to income of elderly units based on the model will be called "family income;"

- PRISM estimates do not include military pensions because the sample population used as input data to the model includes only the civilian population; and

- finally, the financial asset levels (liquid or non-housing asset holdings) in the model are corrected for under-reporting.[2] PRISM's asset income estimates are higher than the corresponding figures from the CPS.

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[2] Data on financial assets collected in the Survey of Income and Program Participation (SIPP) are under-reported for all households (elderly and non-elderly) by 33 percent compared to Federal Reserve Board Balance Sheet data for the household sector. See "Household Wealth and Asset Ownership, 1984," *Current Population Reports: Household Economic Studies*; Series P. 70, No. 7, July 1986. A Lewin/ICF analysis of SIPP asset income for elderly families compared to asset income reported on tax returns by the IRS found that comparable asset income reported on SIPP is 62 percent of asset income reported in the IRS data. Under-reporting was a greater problem for higher income groups.

Appendix A presents a more detailed description of the PRISM model and key assumptions.

Results

Comparing the financial resources of today's elderly to the financial resources of the elderly in 30 years highlights two significant findings: (1) the economic status of the elderly is expected to improve; and (2) with the exception of pensions, the roles of different income sources by demographic characteristics will remain similar to those for the elderly today.

Current Income of the Elderly

Currently, the primary sources of income for elderly families are Social Security benefits and asset income. (See table 1.) Over 90 percent of elderly families receive Social Security benefits with the median level being $7,590. Social Security is the single largest source of income for elderly families, accounting for a little over 40 percent of total income.

A substantial portion of the elderly depend on Social Security for most of their income. In fact, 38 percent of elderly families currently rely on Social Security for at least 80 percent of their income. (See table 2.) Single individuals tend to rely on Social Security benefits more heavily than married couples. Among married couples, 28 percent rely on Social Security benefits for 80 percent or more of their income, while 45 percent of single individuals do so. Single persons rely on Social Security benefits more than married

TABLE 1

CURRENT INCOME OF THE ELDERLY, 1988
(in 1988 dollars)

Income Source	Percent of Elderly Families with Income Source	Median Income from Source for Families with Source	Share of Aggregate Income Contributed by Source
Social Security	92%	$7,590	41%
Private Pensions	40%	$4,730	17%
Earnings	19%	$11,940	17%
Asset	73%	$890	24%
Other	11%	$2,000	1%
TOTAL	100%	$11,750	100%

SOURCE: Lewin/ICF estimates based on the Pension and Retirement Income Simulation Model (PRISM), 1991.

couples do because, among other factors, they are, on average, older and therefore less likely to work.

Asset income makes up the second largest share of income for the elderly; it provides nearly one-quarter of aggregate income. (See table 1.) Income from assets makes up a much larger share of the total income of moderate to higher income elderly families than it does for lower income families. The share of income from assets for higher income elderly families (those with income at or above 300 percent of the poverty level) is over six times as high as the share for lower income families (those with income less than 150 percent of the poverty level) (32 percent versus 5 percent).

Forty percent of elderly families currently receive employer pension income. (See table 1.) This includes both private and public employer pensions and defined benefit and defined contribution plan benefits. The median level of pension income for those receiving pensions is $4,730. Pension income serves primarily as a supplement to Social Security, contributing 17 percent to the aggregate income of elderly families.

TABLE 2

IMPORTANCE OF SOCIAL SECURITY AS AN INCOME SOURCE, 1988

Marital Status	Percent of Families that Receive 50% or More of Total Income from Social Security	Percent of Families that Receive 80% or More of Total Income from Social Security
All Elderly	62%	38%
Married Couples	53%	28%
Single Individuals	67%	45%

SOURCE: Lewin/ICF estimates based on the Pension and Retirement Income Simulation Model (PRISM), 1991.

Less than one-fifth of elderly families receive employment earnings. (See table 1.) They receive a median level of $11,940 per year in earnings. Earnings income goes primarily to younger elderly families because they are more likely to still be in the labor force. Overall, earnings income contributes 17 percent to total elderly aggregate income, with younger elderly families receiving 23 percent of total income from earnings while those age 75 and over receive approximately 5 percent of aggregate income from earnings. (See table 3.)

Other income, mainly Supplemental Security Income (SSI), makes up a small percentage of the aggregate income of elderly families. (See table 1.) The approximately 10 percent of the elderly who receive SSI benefits receive a median level of $2,000.

Future Income Levels

Both the income and wealth of the elderly are expected to increase over the next 30 years. PRISM simulations indicate that family incomes of the elderly are expected to increase by almost 50 percent in real terms (1988 dollars), going from an average of $18,220 in 1988 to $26,780 in 2018. (See table 4.) Median family income is expected to increase by nearly 60 percent over this 30-year period.

According to table 4, the 1.3 percent annual real increase in the average income of elderly families will be higher than the assumed increases in real wages over the period (approximately 1.1 percent annually). The receipt of income from more sources, particularly more elderly families with pension income, is the driving factor behind a rate of increase greater than real wages. Median family income of the elderly will increase at an even faster

TABLE 3

SHARE OF AGGREGATE INCOME FOR ELDERLY FAMILIES CONTRIBUTED BY EARNINGS, 1988

Age Group	Share of Aggregate Income from Earnings
65-75	23%
75-85	7%
85+	3%
All Elderly	17%

SOURCE: Lewin/ICF estimates based on the Pension and Retirement Income Simulation Model (PRISM), 1991.

pace, a 1.6 percent annual real increase through 2018. This expected rate of growth in real median income of elderly families is less than the historical average annual percentage change of 2.6 percent between 1967 and 1989.[3]

Poverty rates, a measure of the relative proportion of the poorest elderly over time, are expected to decline to approximately 7 percent by 2018 under the assumptions used here.[4] This continues a declining trend which began in the

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[3] Daniel B. Radner, "Changes in the Incomes of Age Groups, 1984-1989," *ORS Working Paper Series*, Division of Economic Research, Office of Research and Statistics, Social Security Administration, Number 51, September 1991, p. 30.

[4] Estimates of the number of persons in poverty based on PRISM tend to be somewhat higher than estimates developed by the Census Bureau due to the definitional differences in forming family units and the inclusion of institutionalized persons in the PRISM estimates.

TABLE 4

AVERAGE AND MEDIAN ELDERLY FAMILY INCOME, 1988 AND 2018
(in 1988 dollars)

	1988	2018	Percent Change	Annual Percent Change
Average Family Income	$18,220	$26,780	47%	1.3%
Median Family Income	$11,770	$18,760	59%	1.6%

SOURCE: Lewin/ICF estimates based on the Pension and Retirement Income Simulation Model (PRISM), 1991.

1960s, when the percent of non-institutionalized elderly persons in poverty went from over 35 percent in 1959 to 29 percent in 1966 to 12 percent in 1990.[5]

The elderly are not homogeneous, particularly in terms of their income. Age and marital status significantly influence family income levels of the elderly. Figure 1 shows that the median family income of the youngest elderly is nearly double that of the oldest old in 1988 and that this difference will become more pronounced by 2018. Part of the widening gap between the

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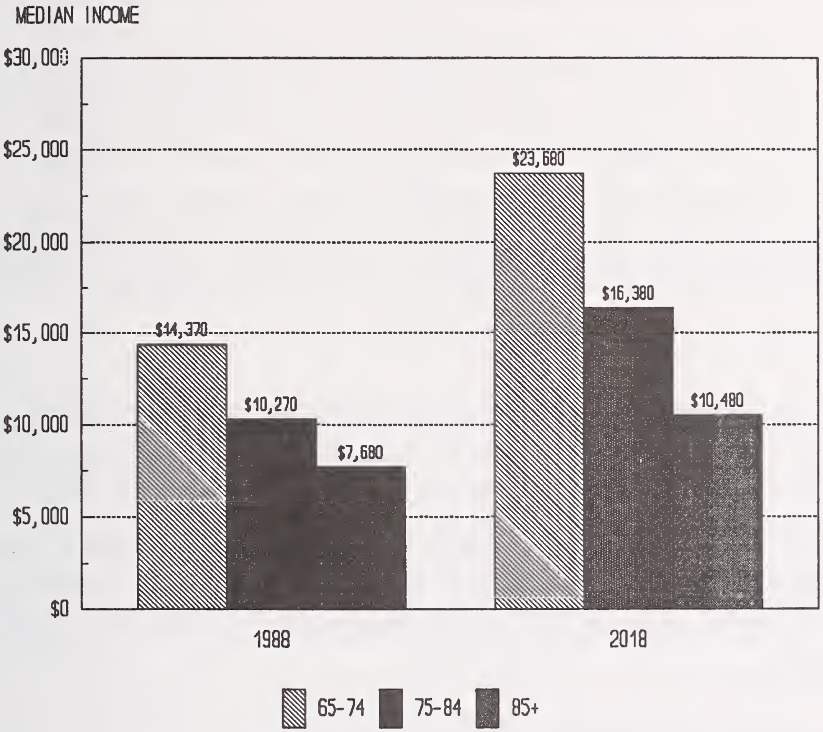
[5] Committee on Ways and Means, U.S. House of Representatives, *Background Material and Data on Programs Within the Jurisdiction of the Committee on Ways and Means*, Washington, D.C., March 1991, p. 1102, and Bureau of the Census News Release, September 1991. The 12 percent of elderly below poverty in 1990 actually reverses the downward trend, rising from 11.4 percent in 1989.

FIGURE 1

YOUNGEST ELDERLY WILL STILL HAVE HIGHEST INCOME



SOURCE: Lewin/ICF estimates based on PRISM.

income of the younger elderly and older elderly will be the result of each successive cohort of elderly families' earnings levels (and thus Social Security benefits) benefiting from real wage increases accumulated during their work life. Younger cohorts are also more likely to include a larger proportion of women with substantial earnings histories. Another factor contributing to the faster increase in income among the younger elderly is the increase in the number of income sources.

Older cohorts' income rises more slowly because they depend mostly on Social Security with some supplement from asset and pension income. Social Security benefits increase with the CPI after the retiree begins receiving benefits, while pension benefits typically do not. As a consequence, longer life spans in the future will mean that the older elderly will have more time over which the purchasing power of these "supplemental" income sources will erode.

There are large difference between married couples and single females (mostly widows) in terms of income. (See table 5.) Of course, both age and marital status are related, with younger elderly more likely to be married and older elderly more likely to be single. (See table 6.) The income of married couples will increase at a higher rate than for single individuals because more elderly couples in the future will have both spouses contributing to family income.

The Roles of Different Sources of Income

Part of the differences in income levels by demographic characteristics described above are due to the roles different sources of income play for different groups. We project retirement income to increase faster than real

TABLE 5

MEDIAN INCOME LEVELS OF ELDERLY FAMILIES BY MARITAL STATUS, 1988 AND 2018 (in 1988 dollars)

Marital Status	1988	2018
Married Couples	$19,760	$31,510
Single Individuals	$8,060	$11,950
Single Males	$9,860	$17,480
Single Females	$7,760	$10,935

SOURCE: Lewin/ICF estimates based on the Pension and Retirement Income Simulation Model (PRISM), 1991.

wages primarily because more elderly families will be receiving pension, IRA, and asset income.

Social Security. Social Security is the largest single source of income among elderly families. The importance of Social Security as an income source for the elderly has increased over the past three decades. In 1962, Social Security benefits made up less than one-third of the total aggregate income of the elderly, while currently it provides nearly 40 percent of aggregate income and is expected to remain at about that level in 2018. (See table 7.)[6] The percentage of elderly families with Social Security income is expected to increase more slowly in the future. (See figures 2 and 3.)[7]

Social Security provides the primary source of income for most elderly families and will continue to do so in the future. Almost 62 percent of elderly families currently rely on Social Security for at least half of their income, with the oldest old (elderly 85 and above) relying on Social Security more heavily. (See table 8.) In 2018, a similar but slightly smaller percentage (58.2 percent) of elderly families will receive half or more of their total income from Social Security. Social Security will continue to be particularly important for the oldest old. Almost one-half (46.9 percent) of the elderly age 85 and over will rely on Social Security for 80 percent or more of their total income.

Families with lower incomes also rely more heavily on Social Security income than those with higher incomes. (See table 9.) Social Security makes up four-fifths of total income for families with income less than 150 percent of the poverty level, while families with income of 300 percent of the poverty level or more rely on Social Security for less than one-quarter of total income currently. We project that this striking difference will continue in the future, since those with higher incomes will still be more likely to derive income from a wider variety of sources than those with lower incomes.

Private Pensions. Employer pensions will become a more important component of the income of the elderly in the future. Pensions are defined

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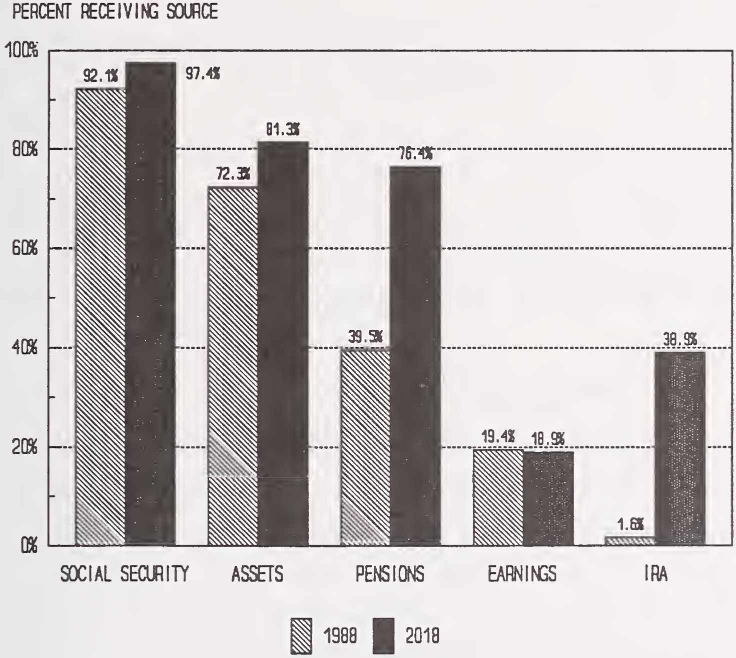
[6] Social Security Administration, *Income of the Population 55 and Over*, 1962, and Lewin/ICF estimates based on the Pension and Retirement Income Simulation Model, 1991.

[7] There are two reasons for Social Security receipt rates leveling off: (1) social security is now a "mature" system; and (2) very few occupations are not covered by Social Security.

FIGURE 2

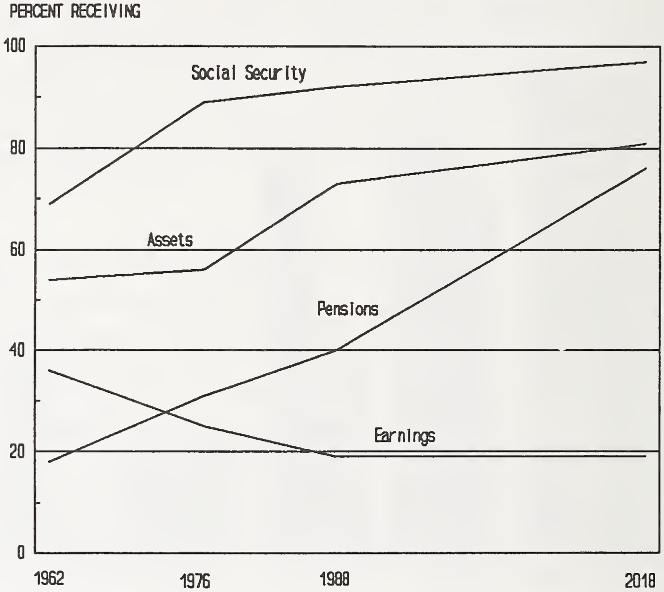
PENSIONS, IRAs, AND ASSET INCOME
WILL INCREASE AS SOURCES OF INCOME



SOURCE: Lewin/ICF estimates based on PRISM.

FIGURE 3

CHANGES IN INCOME SOURCE RECEIPT REFLECT ONGOING TRENDS



SOURCE: Data from SSA prior to 1988 and Lewin/ICF estimates based on PRISM.

TABLE 6

MEDIAN INCOME LEVELS OF ELDERLY FAMILIES BY AGE AND MARITAL STATUS, 2018
(in 1988 dollars)

Marital Status	All Elderly	65-74	75-84	85+
All Elderly	$18,760	$23,680	$16,380	$10,480
Married Couples	$31,510	$35,690	$26,420	$20,010
Single Individuals	$11,950	$14,490	$11,440	$9,500
Single Males	$17,480	$20,700	$16,490	$11,160
Single Females	$10,935	$12,840	$10,520	$9,200

SOURCE: Lewin/ICF estimates based on the Pension and Retirement Income Simulation Model (PRISM), 1991.

here to include both defined benefit pension plans and defined contribution plans.[8] Defined contribution plans include profit sharing, 401(k), and employee stock option (ESOP) plans. Under the assumptions used here, pension income receipt is expected to increase dramatically, going from approximately 40 percent of elderly families with pension income today to 76 percent by 2018. This increase reflects a continuation of the past trends in pension income receipt among elderly families displayed in figure 3.

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[8] Defined benefit plans specify a given level of benefits to be provided to employees upon retirement. Defined contribution plans specify a level of contributions by an employer on behalf of an employee which, along with accrued interest, is distributed to the employee upon retirement.

A number of factors will influence this continuing rise in pension coverage. One reason pension receipt will continue a fairly steep increase in the future is legislative mandates that have been enacted over the past 20 years, including:

- the Employee Retirement Income Security Act (ERISA) of 1974, which established a 10-year vesting requirement in private pension plans;

- the Retirement Equity Act (REA) of 1984, which established joint and survivor benefit protections and increased the likelihood that spouses will receive survivor's benefits; and

- provisions of the 1986 Tax Reform Act (TRA), which mandated that private pension plans meet:

    - minimum vesting standards: either 5-year cliff vesting (i.e., no vesting for years 0 to 5, then 100 percent after that point) or 7-year graduated vesting (i.e., no vesting for years 0 to 3, and then 20 percent increments to 100 percent vesting by year 7);

    - antidiscrimination rules, in which highly compensated workers are not allowed to receive a disproportionate amount of a plan's pension benefits;

    - Social Security integration standards;[9] and

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[9] Social Security integration is where some pension plans reduce pensions based on the level of Social Security benefits received in an attempt to target a particular replacement rate for wages across all levels of earners.

TABLE 7

SOURCES OF INCOME BY SHARE OF AGGREGATE INCOME

Income Sources	SSA Estimates[1]				PRISM Estimates	
	1962	1967	1978	1988	1988	2018
Social Security	31%	34%	38%	38%	41%	39%
Assets	16%	15%	16%	25%	24%	19%
Pensions	9%	12%	16%	17%	17%	25%
Earnings	28%	29%	23%	17%	17%	15%
Other	16%	10%	4%	3%	1%	3%
Total	100%	100%	100%	100%	100%	100%

[1] SSA estimates do not include the institutionalized.

SOURCE: Social Security Administration, *Income of the Population 55 and Over* for selected years, and Lewin/ICF estimates based on the Pension and Retirement Income Simulation Model (PRISM), 1991.

- requirements for lump-sum distributions that include penalties for not rolling over lump-sum distributions (LSDs) into an IRA before age 60.

As a result, the majority of tomorrow's retirees will have spent much of their careers in a work force where pensions were regulated by ERISA's and TRA's minimum vesting and antidiscrimination rules, thus increasing the likelihood of their being entitled to a pension and receiving one in retirement.

TABLE 8

RELATIVE IMPORTANCE OF SOCIAL SECURITY INCOME, 1988 AND 2018

	1988	2018
All Elderly		
50% or More	61.6%	58.2%
80% or More	38.3%	25.8%
Elderly 85 and Over		
80% or More	79.8%	76.9%
80% or More	55.5%	46.9%

SOURCE: Lewin/ICF estimates based on the Pension and Retirement Income Simulation Model (PRISM), 1991.

Also, the REA's joint and survivor protections should mean that more widows will receive some pension benefits.

A second factor that will increase pension receipt is the continuing increased labor force participation of women coupled with longer periods of employment in industries that are more likely to offer pension coverage as a benefit. The likelihood of a woman being in the labor force has increased significantly since 1960 and is expected to increase further. (See table 10.)

The maturation of the pension system over the past 30 years means that elderly families will be more likely to be receive pensions over the next 30 years. On the other hand, some analysts argue that the rise in pension receipt will flatten out over the next several decades because current pension coverage rates have not grown over the last decade.[10] But figure 4 shows that significantly more workers are covered (i.e., have met plan participation requirements) by pensions than 40 years ago, when most of the current elderly were in their prime as workers. Looking at workers who will retire in the next 20 years (those age 45 and over) shows that over one-half (and up to nearly 60 percent for the 60-64 year age group) are currently entitled to pension benefits. (See table 11.) These rates of entitlement are significantly higher than the percentage of persons age 65 or over, or 65 to 74, who are currently receiving pension benefits. The plausibility of the expected increase in pension receipt is also reflected in the higher receipt of pension income for younger cohorts of the elderly. (See figure 5.) Therefore, despite stagnant coverage rates over the last 15 to 20 years, it is reasonable to expect continuing increases in the percentage of elderly families receiving pensions.

Figure 6 shows that we project the receipt of public and private pensions will increase, with the growth in private defined contribution pensions outpacing the growth in private defined benefit plans and public pensions. These expected increases in pensions are the result of employers shifting to defined contribution plans (primarily as a result of a shift toward a service economy from a manufacturing economy)[11] and shorter vesting schedules (as a result of TRA 86), which means workers are more likely to be vested, but with smaller amounts.

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[10] John H. Biggs, "Implications of Demographic Change for the Design of Retirement Programs," *Pension Research Council Working Paper*, Series 91-5, The Wharton School of the University of Pennsylvania, Philadelphia, PA, May 1991.

[11] Ippolito, Richard A., *Pension Plan Choice, 1979-1987: Clarification and Extensions*, PBGC, December, 1990.

TABLE 9

SHARE OF AGGREGATE INCOME FROM SOCIAL SECURITY BY INCOME AS A PERCENT OF POVERTY, 1988 AND 2018

Income as a Percent of the Poverty Level	1988	2018
Less than 150 percent	80%	82%
150-299 percent	67%	72%
300% or more	23%	30%
All Elderly Families	41%	39%

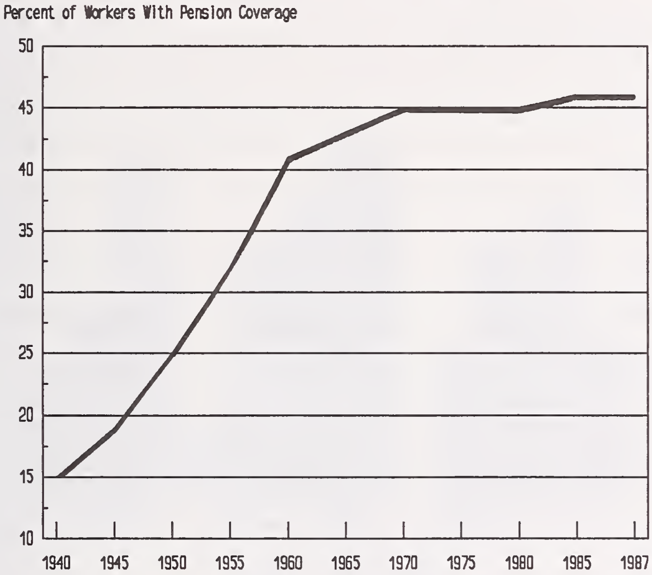
SOURCE: Lewin/ICF estimates based on the Pension and Retirement Income Simulation Model (PRISM), 1991.

The size of median real pension among those receiving pension income is expected to increase only 3 percent over the next 30 years, from $4,730 to $4,860. This is because many of the new persons entitled to pension benefits are entitled by virtue of shorter vesting schedules. These persons, who traditionally would not have been entitled to pensions, will receive smaller pensions than the average size of pensions received today, because they will have less years of pension-covered service. Also, these newly entitled persons are more likely to have lower wages than pension-entitled workers in the past and, thus, will be entitled to lower pension benefits.

Despite the slow increase in median pension levels, pension income will make up an increasing share of the elderly's income, going from 17 percent to 25 percent. (See table 12.) Pensions will continue to serve as a

FIGURE 4

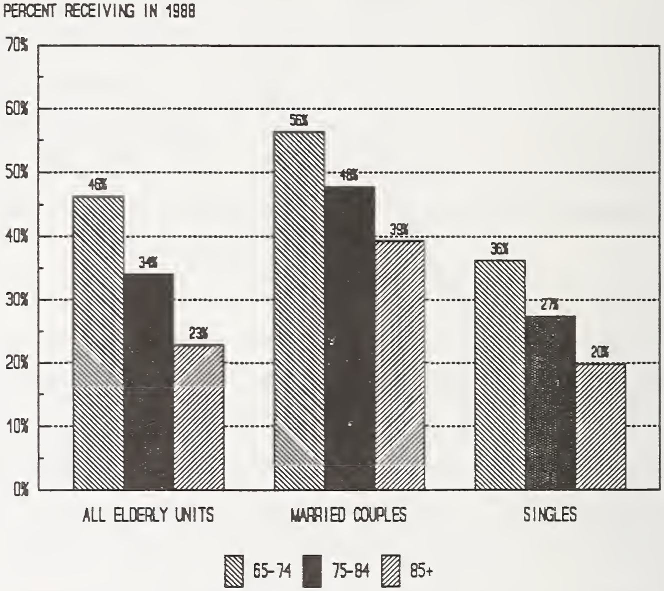
THE PERCENT OF WORKERS COVERED BY PENSIONS HAS INCREASED DRAMATICALLY IN THE LAST FIFTY YEARS



SOURCE: Alfred M. Skolnik, "Private Pensions, 1950-1974," Social Security Bulliten, Vol. 39 (June, 1976) and Unpublished data from Daniel J. Beller, U.S. Department of Labor, Pension and Welfare Benefits Administration, 1989.

FIGURE 5

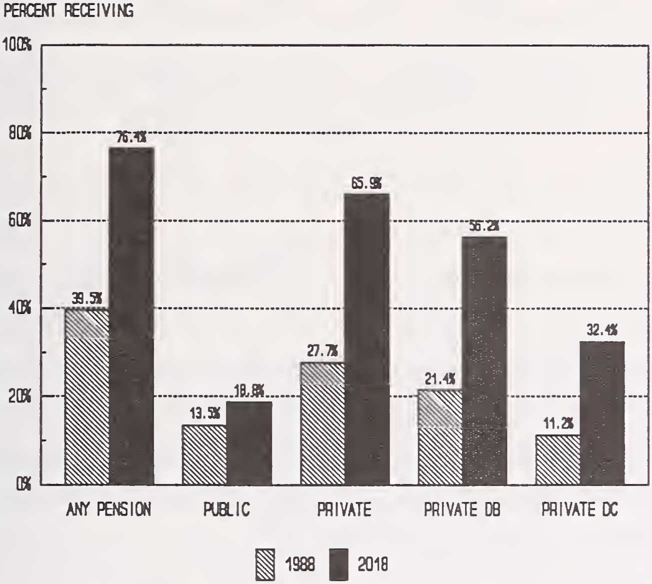
MATURATION OF THE PENSION SYSTEM HAS LED TO INCREASED RECEIPT FOR YOUNGER COHORTS



SOURCE: Lewin/ICF estimates based on PRISM.

FIGURE 6

BOTH RECEIPT OF PUBLIC AND PRIVATE PENSIONS WILL INCREASE



SOURCE: Lewin/ICF estimates based on PRISM.

TABLE 10

LABOR FORCE PARTICIPATION RATES OF WOMEN

Age	1960	1970	1980	1990	2000
25-34	36%	75%	66%	75%	82%
35-44	43%	51%	66%	77%	85%
45-54	50%	54%	60%	71%	77%

SOURCE: Howard N. Fullerton, Jr., "Labor Force Projections 1988-2000," *Bureau of Labor Statistics' Monthly Labor Review*, and unpublished data, Bureau of Labor Statistics, November 1989.

complement to Social Security, though. While approximately 60 percent of the elderly will rely on Social Security for one-half of their income, less than 10 percent of the elderly will rely on pensions for more than one-half of their income. (See table 13.) Part of the reason pensions do not constitute a high percentage of total income for most elderly families is the integration of pension plans with Social Security, whereby benefits paid by many pensions plans are offset by Social Security benefits.[12]

The share of aggregate income contributed by pensions for the oldest old is not likely to increase as much as for younger elderly age groups. Pensions tend to decline in real terms for the older elderly because the cost-of-living adjustments (COLAs) for pensions are limited. A recent Bureau of Labor

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[12] Robert C. Merton, Zvi Bodie and Alan J. Marcus, "Pension Plan Integration as Insurance Against Social Security Risk," in *Pensions in the U.S. Economy* edited by Zvi Bodie, John B. Shoven, and David A. Wise, NBER, University of Chicago Press, 1988.

TABLE 11

PERCENT OF WORKERS ENTITLED TO PENSION BENEFITS, 1988

Age Group	Percentage of Workers Entitled to Pension Benefits, 1988
25-34	35%
35-44	49%
45-54	54%
55-59	56%
60-64	57%

SOURCE: Lewin/ICF estimates based on tabulations of the May 1988 Current Population Survey (CPS).

Statistics survey found that while 75 percent of State and local plans have COLAs, only 28 percent of private defined benefit plans do. In both public and private plans, COLAs only average about 60 percent of the change in inflation.[13] Receiving cost-of-living increases which are less than inflation over a more-than-20-year period means that the real level of pension benefits will decline for a recipient. This, in turn, means that the relative importance of pension income compared to Social Security (which has COLAs equal to inflation) for the older elderly will be less than that for younger elderly.

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[13] U.S. Department of Labor, *Employee Benefits in Medium and Large Firms, 1989,* Bureau of Labor Statistics, Bulletin #2336, August 1989.

TABLE 12

PENSION INCOME AS A SHARE OF AGGREGATE INCOME BY AGE, 1988 AND 2018

	1988	2018
All Elderly	17.4%	24.9%
65-74	18.3%	25.6%
75-84	15.6%	25.0%
85 and over	15.6%	18.5%

SOURCE: Lewin/ICF estimates based on the Pension and Retirement Income Simulation Model (PRISM), 1991.

The increased role of pensions in the income of the elderly is not guaranteed because there are many uncertainties about the future role of pensions, including:

- will employers reduce pension benefits to offset increases in health care costs?

- will persons who elect to receive the present value of pension assets upon leaving a job (i.e., separated vested participants who receive lump-sum distributions) save or consume these assets?

- will employers continue to give post-retirement cost-of-living increases?

- will more pension plans terminate?[14]

- will pension coverage decline?

Employment Earnings. The percentage of elderly families with earnings income is expected to remain stable over the next 30 years. (See figure 2.) This plateau in the previously declining trend of the percent of elderly families with employment income reflects a relatively constant assumed labor force participation rate for the elderly. (See table 14.) The importance of earnings as an income source of elderly families has also declined with the labor force participation rates since 1962, going from 28 percent of aggregate income to around 17 percent of aggregate income. (See table 7.)

Employment earnings will continue to be an important source of income primarily for younger elderly families. Around one-fifth of all income for those age 65 to 74 came from employment earnings in 1988 (23 percent), and close to the same level will come from earnings in 2018 (19 percent.) For families headed by someone age 75 or older, only around 5 percent of their income comes from earnings (6 percent in 1988 and 5 percent in 2018). These estimates assume that some individuals will delay their retirement due to the increase in the age for receipt of unreduced Social Security benefits. If more individuals delay retirement than is assumed here, it is likely that earnings will play a greater role in the income of the elderly in 2018.

Asset Income. Figure 2 shows that the percentage of elderly families with asset income will increase from 73 percent to 81 percent. This expected increase is the result of the increased income of elderly families in the future;

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[14] Some plans may be terminated because some firms may enter bankruptcy due to their large unfunded pension liabilities.

TABLE 13

RELIANCE ON SOCIAL SECURITY INCOME VERSUS RELIANCE ON PENSION INCOME, 2018

Income Source	Percentage of Families Relying On Income Source for 50% or More of Total Income	
	1988	2018
Pensions	7%	9%
Social Security	62%	58%

SOURCE: Lewin/ICF estimates based on the Pension and Retirement Income Simulation Model, 1991.

as elderly families have higher income on average, they will also be more likely to have increased savings.

Asset income will remain an important source of income mainly for moderate and upper income elderly. Asset income plays a significantly larger role for elderly families with higher incomes. (See table 15.)

Other Income Sources. Other income sources, such as Individual Retirement Accounts (IRAs) and Supplemental Security Income (SSI), contribute relatively little to the total income of the elderly. Although many more elderly families will have IRA income in the future (nearly 40 percent, up from 2 percent currently), the low levels of tax deductible contributions permitted currently means that the income generated from IRAs will be small. In 2018, we project the aggregate income contribution that elderly families will derive from IRAs to be less than 3 percent.

SSI income will decline in importance because real income will increase over the next 30 years while SSI resource limits are assumed to increase at a slower rate than the CPI to reflect historic trends.[15] Nearly 10 percent of elderly families receive SSI in 1988, while it is expected that only 3 percent of elderly families will receive SSI in 2018. Because it is a means-tested program, the SSI program benefits more of the older elderly because this group is more likely to have lower income and financial resources.

The Distribution of Income and Wealth

Income. Not only will elderly families experience an overall real increase in income of nearly 50 percent over the next 30 years, but the distribution of that income among elderly families is also expected to become a little more evenly distributed. (See figure 7.) This modest improvement will be experienced mostly by elderly families in the third and fourth income quintiles of the income distribution. Those in the lowest 2 quintiles will gain less than 1 percentage point of the share of total income of elderly families. The largest change will be for elderly families in the highest income quintile, with a 3.6 percentage point decline in the total share of income from 1988 to 2018.

Wealth. Family asset levels are also expected to increase over the next three decades, but the distribution of financial resources will remain heavily concentrated. Real median financial assets (liquid or non-housing assets such

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[15] Historically, the resource limits for SSI have not increased automatically. Periodic updates generally have not kept pace with inflation.

TABLE 14

LABOR FORCE PARTICIPATION RATES OF THE ELDERLY

Year	Men	Women
1950	45.8%	9.7%
1960	33.1%	10.8%
1970	26.8%	9.7%
1980	19.1%	8.1%
1980	19.1%	8.7%
2000	14.7%	7.6%

SOURCE: Historical data—Committee on Ways and Means, U.S. House of Representatives, *Background Material and Data on Programs Within the Jurisdiction of the Committee on Ways and Means*, Washington, D.C., March 1991, p. 1101.

Projections—Howard N. Fullerton, Jr., "Labor Force Projections 1988-2000," Bureau of Labor Statistics' Monthly Labor Review, Bureau of Labor Statistics, November 1989.

as savings, stocks, bonds, and property income) for elderly families are projected to increase from $2,210 in 1988 to $7,210 in 2018. Figure 8 shows that the percentage of elderly families with financial assets will increase and that these financial asset levels are expected to be higher than today. Despite this increase in financial assets, an overwhelming majority (almost 85 percent) of the financial assets distribution will remain

TABLE 15

PERCENT OF ELDERLY FAMILY INCOME FROM ASSET INCOME BY INCOME AS A PERCENT OF THE POVERTY LEVEL, 2018

Income as a Percentage of the Poverty Level	Share of Aggregate Income From Asset Income
Less than 150 percent	3%
150 to 299 percent	6%
300 percent or more	22%

SOURCE: Lewin/ICF estimates based on the Pension and Retirement Income Simulation Model (PRISM), 1991.

concentrated among elderly families in the highest quintile of the distribution. (See figure 9.)

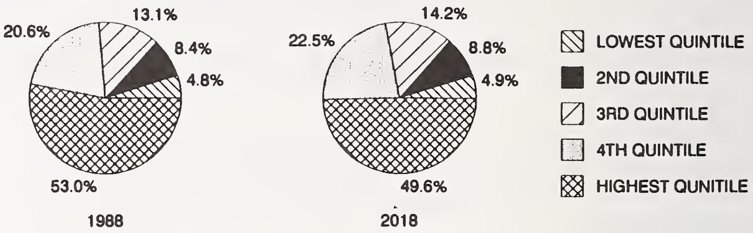
Conclusions

The analyses presented in this paper indicate that under the economic assumptions used here, elderly families will have fairly substantial increases in their income over the next 30 years. Average and median income of elderly families will increase at a rate faster than the assumed rate of increase in real wages. But despite this increase, the roles of different income sources will remain relatively similar. Social Security will continue to be the primary source of income for most elderly families in the future. Although pensions are expected to play an increasingly important role, they will remain a

FIGURE 7

INCOME DISTRIBUTION WILL IMPROVE

Share of Income Held

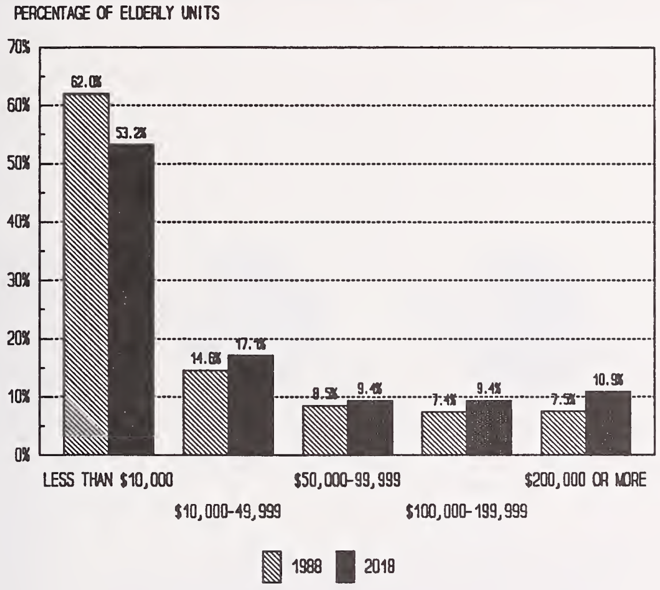


Note: 1988 income quintile breaks -- $6,147, $9,382, $14,663, and $25,376.
2018 income quintile breaks -- $9,497, $15,056, $23,396, and $39,544.

SOURCE: Lewin/ICF estimates based on PRISM.

FIGURE 8

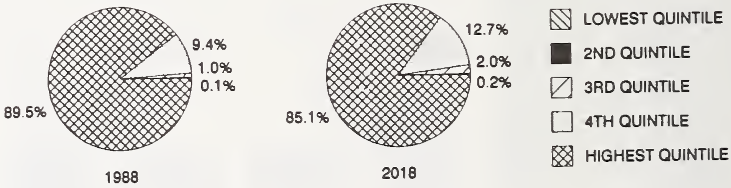
ELDERLY FAMILIES WILL HAVE MORE FINANCIAL ASSETS



SOURCE: Lewin/ICF estimates based on PRISM

FIGURE 9

FINANCIAL ASSET DISTRIBUTION WILL REMAIN CONCENTRATED



NOTE: The first quintile does not have any financial assets in 1988 and in 2018.
Financial asset quintile breaks in 1988 -- $0, $1,080, $7,459, $67,310, and $304,365.
Financial asset quintile breaks in 2018 -- $127, $1,879, $19,502, $102,662, and $439,866.

SOURCE: Lewin/ICF estimates based on PRISM.

complement to Social Security. Employment earnings will continue to be important primarily for younger elderly. Finally, as the number of older elderly increases, the role of indexing of Social Security benefits and pensions will become more important to maintaining an adequate standard of living.

It is important to keep in mind that the projections presented here attempt to predict the behavior of retirees 30 years in the future based on assumptions regarding relevant behavior today and assumptions about the economy. To the degree that these assumptions are not met, the results of the analysis will differ.

APPENDIX A

Methodology and Assumptions Used in the Pension and Retirement Income Simulation Model (PRISM)

The Pension and Retirement Income Simulation Model (PRISM) develops future estimates of the income of the elderly.[1] The model simulates incomes after age 64 for a representative sample of individuals who were age 25 and older in 1979. The sources of income for the elderly modeled in PRISM include: Social Security, employer pensions, Individual Retirement Accounts (IRAs), employment earnings, asset income, and Supplemental Security Income (SSI) program benefits. PRISM simulates income for this sample of individuals based upon: (1) the characteristics of individuals in 1979; (2) their family and work histories prior to 1979; and (3) simulations of the future work force experience of these individuals.

In order to simulate the future work force experience and incomes after age 64 of these individuals, the model requires a large number of assumptions concerning the likelihood of future events for each individual, such as the likelihood an individual will continue to work, whether he or she will become divorced or married, at what age an individual will accept Social Security or pension benefits, and whether he or she will continue to work after accepting Social Security or pension benefits. These assumptions are divided into eight major areas:

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[1] For a more detailed discussion of the PRISM simulation methodology and assumptions see: David L. Kennell and John F. Sheils, "The ICF Pension and Retirement Income Simulation Model (PRISM) with the Brookings/ICF Long-Term Care Financing Model," ICF Incorporated, Washington, D.C., September 1986.

- demographic;
- labor force and economic;
- pension coverage;
- Social Security and the retirement decision;
- employer pension provisions;
- individual retirement accounts;
- housing and financial assets; and
- Supplemental Security Income benefits.

The key assumptions used in each of these areas are summarized below. We start by briefly summarizing the PRISM modeling system.

PRISM Modeling System

The Pension and Retirement Income Simulation Model (PRISM) simulates the distribution of income for the elderly from both public and private sources. PRISM simulates income from Social Security, private and public employee retirement plans, Individual Retirement Accounts (IRAs), earnings, assets, and the Supplemental Security Income (SSI) program, as well as taxes paid by the elderly.

The model simulates the distribution of income after age 64 among households of various socioeconomic groups for a representative sample of individuals age 25 and older in 1979. The sample of representative individuals comes from the ICF Pension/Social Security Data Base, an exact match of the Special Pension Supplement to the May 1979 Current Population Survey (CPS) and Social Security Administration (SSA) earnings history data for 1951 through 1977.

PRISM is a dynamic microsimulation model that uses Monte Carlo simulation techniques to simulate the future income of the elderly. In Monte Carlo simulation, one compares a random number to the estimated probability that an event occurs. For example, suppose the annual probability of death of an 85-year-old disabled woman is 10 percent. If the random number selected for a woman with these characteristics is less than 0.10, then the model simulates that the women dies in that year.

For each individual in the population data base, PRISM uses probabilities estimated primarily from Census data to simulate each individual's earnings, periods of employment, and family structure between 1979 and the date of death. To ensure that PRISM simulations of labor force participation and earnings are consistent with the projected aggregate growth of the economy, PRISM simulations are linked to aggregate projections of the economy. These aggregate projections can be from the Social Security Trustees, the U.S. Bureau of Labor Statistics, or other macroeconomic forecasts.

Using the simulated work histories, the model calculates the Social Security benefits and IRA accumulations for each individual, as well as SSI benefits and earnings from employment. When individuals are simulated to enter a pension-covered job, the model assigns them to an actual pension plan sponsor selected from a representative sample of private and public retirement plan sponsors (the ICF Retirement Plan Provisions Data Base). When an individual meets the plan's eligibility standards, PRISM then calculates his or her benefit using the plan's actual benefit provisions. The model also estimates the amount of individuals' assets after age 64 based upon the distribution of assets reported in the 1984 Panel of the Survey of Income and Program Participation (SIPP). Separate amounts are estimated for financial assets and home equity.

Demographic Assumptions

PRISM simulates mortality, disability, child bearing, and changes in marital status. During each simulation year, individuals are simulated to die, become disabled, recover from disability, bear children, and become married or divorced. The model uses a variety of assumptions to simulate these events. In the current version of the model, most of the demographic assumptions are based upon the Alternative II assumptions used in the 1991 report of the Trustees of the Old Age and Survivors Insurance and Disability Insurance Trust Funds ("1991 Trustees Report"). The major assumptions are discussed below.

Mortality

PRISM uses Alternative II mortality assumptions in the 1991 Trustees Report. Mortality rates vary by age, sex, disability status, and years since becoming disabled. Mortality rates vary during each simulation year to reflect projected improvements in mortality. Mortality adjustments are made for persons 65 and over to reflect differences in mortality between institutionalized and non-institutionalized, disabled and non-disabled persons.

Disability

For persons under 65, PRISM uses the rates of disability in the 1991 Trustees Report. These rates vary by age and sex and are assumed to remain unchanged over time. Disability rates for persons age 65 and over are based on data from the 1982-1984 National Long Term Care Survey (NLTCS).

Recovery from Disability

For persons under 65, PRISM uses rates of disability recovery developed by the Social Security actuaries. These rates vary by age, sex, and years since becoming disabled. Transitions and recovery from disability for the elderly are also based on the 1982-1984 NLTCS.

Child Bearing

Fertility rates in the model are based upon an analysis of Census Bureau data on women who gave birth to children during the 1976-1980 period. These fertility rates vary by age, marital status, employment status, and number of children. In the model, these rates were constrained to match the Alternative II assumptions of fertility in the 1991 Trustees Report.

Marital Status

All probabilities concerning marriage and divorce are obtained from Monthly Vital Statistics data developed by the National Center for Health Statistics. The aggregate rates match the Alternative II projections in the 1991 Trustees

Report. Divorce rates vary by the age of husband and wife. Marriage rates vary by age, sex, and marital status, (i.e., never married, divorced, or widowed) of the individual. In the model, individuals selected to become married are joined with a member of the opposite sex based upon data on the distribution of newly married individuals by age and education of husband and wife reported in Vital Statistics data. The marriage and divorce rates are assumed to remain constant in the future.

Labor Force and Economic Assumptions

PRISM simulates each individual's employment history from 1979 (the date of the May 1979 CPS survey) through 2020. During each simulation year, the model simulates wage rates, hours worked, job change, and industry of employment. The simulations are constrained to match September 1989 Bureau of Labor Statistics (BLS) projections of employment and industry composition and the Alternative II assumptions from the 1991 Trustees Report of average wage rates in future years. The major assumptions are:

Employment Levels Over Time

PRISM simulates aggregate levels of employment consistent with BLS forecasts of labor force participation rates for 1989-2000. (See table A.1.) Labor force participation rates after 2000 are assumed to remain constant for each age/sex group. These forecasts include: (1) trends in employment for men and women of various age groups; (2) projections of economic growth; and (3) trends in the age of retirement. Unemployment rates from the 1991 Trustees Report for the years 1991-2020 are used. (See table A.2.) Actual participation rates and unemployment rates for 1979 through 1990 are used.

TABLE A.1[a]

LABOR FORCE PARTICIPATION RATES

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000 and after
Men																	
16-17	43.5	45.1	45.3	45.6	46.1	46.7	46.8	47.2	47.3	47.6	47.8	48.0	48.2	48.4	48.6	48.7	48.9
18-19	68.1	68.9	68.3	67.4	68.1	68.9	68.9	68.9	69.0	69.1	69.2	69.3	69.3	69.5	69.6	69.7	69.7
20-24	85.0	85.0	85.8	85.2	85.0	84.8	84.9	85.0	85.3	85.7	85.8	85.9	85.9	86.0	86.2	86.3	86.5
25-34	94.3	94.7	94.6	94.6	94.3	94.3	94.3	94.3	94.2	94.2	94.2	94.2	94.2	94.2	94.1	94.1	94.1
35-44	95.4	95.0	94.8	94.6	94.5	94.7	94.6	94.6	94.6	94.5	94.5	94.5	94.4	94.4	94.4	94.4	94.3
45-54	91.1	91.0	91.0	90.7	90.9	91.1	91.0	91.0	91.0	90.9	90.9	90.8	90.8	90.7	90.6	90.5	90.5
55-59	80.2	79.6	79.0	79.7	79.3	79.4	79.4	79.2	79.2	79.1	79.0	79.0	78.9	79.0	78.9	79.0	79.0
60-61	68.1	68.9	67.7	67.5	67.1	68.0	67.9	67.7	67.5	67.5	67.3	67.1	67.1	66.9	66.8	66.6	66.6
62-64	47.5	46.1	45.8	46.0	45.4	45.4	45.6	45.6	45.8	45.7	45.7	45.4	45.3	45.1	45.0	44.8	44.8
65-69	24.5	24.4	25.0	25.8	25.8	25.9	25.8	25.7	25.7	25.8	25.6	25.5	25.4	25.4	25.4	25.3	25.3
70-74	16.0	14.8	14.3	14.7	15.2	15.3	15.3	15.2	15.1	15.0	14.9	14.9	14.9	14.7	14.6	14.6	14.5
75+	7.5	7.0	7.1	7.1	7.4	7.4	7.3	7.1	7.1	7.0	7.0	7.0	6.9	6.9	6.7	6.7	6.7

(Continued)

TABLE A.1 (Continued)

	1984	1985	1986	1987	1988	1989	1992	1994	1992	1993	1994	1999	1996	1997	1998	1999	2000 and after
Women																	
16-17	41.2	42.1	43.7	44.5	44.0	44.6	45.3	46.0	46.5	47.0	47.5	47.9	48.3	48.7	49.1	49.4	49.8
18-19	61.8	61.7	62.3	62.2	62.9	63.9	64.4	64.9	65.3	66.0	66.5	67.0	67.5	67.9	68.2	68.7	69.0
20-24	70.4	71.8	72.4	73.0	72.7	73.1	73.6	74.1	74.7	75.2	75.8	76.1	76.4	76.8	77.2	77.6	77.9
25-34	69.8	70.9	71.6	72.4	72.7	73.6	74.5	75.3	76.4	77.1	78.0	78.8	79.5	80.3	81.0	81.7	82.4
35-44	70.2	71.8	73.1	74.5	75.2	76.1	77.1	78.1	79.1	80.0	80.8	81.5	82.2	83.0	83.7	84.3	84.9
45-54	62.9	64.4	65.9	67.1	69.0	69.7	70.5	71.2	72.1	72.7	73.5	74.1	74.8	75.2	75.6	76.1	76.5
55-59	49.8	50.3	51.3	52.2	53.3	54.2	54.9	55.3	55.8	56.3	56.8	57.4	57.8	58.2	58.7	59.2	59.6
60-61	40.0	40.3	40.0	41.0	41.7	42.0	42.2	42.5	42.7	43.0	43.3	43.5	43.8	44.1	44.4	44.6	44.9
62-64	28.8	28.6	28.5	27.8	28.5	28.6	28.8	28.8	28.9	28.9	29.1	29.1	29.1	29.1	29.2	29.3	29.3
65-69	14.2	13.5	14.3	14.3	15.4	15.4	15.5	15.7	15.7	15.9	16.0	16.2	16.3	16.5	16.5	16.7	16.9
70-74	7.3	7.6	6.9	6.6	7.5	7.6	7.6	7.8	7.9	7.9	8.1	8.2	8.3	8.3	8.5	8.6	8.7
75+	2.5	2.2	2.4	2.5	2.4	2.6	2.5	2.5	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.2	2.2

[a] Participation rates are expressed as percentages.

SOURCE: Howard N. Fullerton, Jr., unpublished data, Bureau of Labor Statistics, November 1989.

TABLE A.2

UNEMPLOYMENT ASSUMPTIONS

Year	Average Annual Unemployment Rate
1979	5.8%
1980	7.2
1981	7.6
1982	9.7
1983	9.6
1984	7.5
1985	7.2
1986	7.0
1987	6.2
1988	5.5
1989	5.3
1990	5.5
1991	6.6
1992	6.3
1993	6.0
1994	5.9
1995	5.8
1996-1999	5.8
2000-2004	5.7
2005 and later	6.0

SOURCE: Alternative II assumptions from the *1991 Annual Report of the Board of Trustees of the Federal Old Age and Survivors Insurance and Disability Insurance Trust Funds*, Social Security Administration, Washington, D.C., April 1991.

Employment by Socioeconomic Group

Given the levels of labor force participation for different age/sex groups, the model simulates the number of hours each individual will work during each simulation year based upon an analysis of Bureau of the Census data on employment patterns during the 1976-1980 period. For each individual, the decision to work, and the number of hours worked in a year varies by age, sex, hours worked in each of the three previous years, marital status, presence of children at various ages, pension receipt status, and Social Security benefit receipt status.

Inflation

Consumer prices are assumed to increase at the rate specified under the Alternative II assumptions in the 1991 Trustees Report. These price change assumptions are shown in table A.3.

Interest Rates

Assets in all defined contribution plans and Individual Retirement Accounts (IRAs) are assumed to earn interest at a long-run rate of 6.3 percent, consistent with the Social Security Alternative II assumptions.

Wage Growth

Aggregate wage levels are assumed to increase at the rate assumed in the Alternative II assumptions of the 1991 Trustees Report. (See table A.4.) In general, average wages are assumed to grow by 1.1-1.5 percentage points in excess of the inflation rate in each year after 1990, with an ultimate real

TABLE A.3

CONSUMER PRICE INDEX ASSUMPTIONS USED IN FORECASTS

Calendar Year	Annual Change in Consumer Price Index
1979	11.4
1980	13.4
1981	10.3
1982	6.0
1983	3.0
1984	3.5
1985	3.5
1986	1.6
1987	3.6
1988	4.0
1989	4.8
1990	5.3
1991	4.9
1992	4.0
1993	4.0
1994	4.0
1995 and later	4.0

SOURCE: Alternative II assumptions from the *1991 Annual Report of the Board of Trustees of the Federal Old Age and Survivors Insurance and Disability Insurance Trust Funds*, Social Security Administration, Washington, D.C., April 1991.

TABLE A.4

ASSUMED REAL EARNINGS DIFFERENTIALS

Year	Real Earning Differential[a]
1979	-1.6%
1980	-4.4
1981	-0.6
1982	0.5
1983	2.0
1984	3.7
1985	0.8
1986	2.7
1987	1.4
1988	1.1
1989	-1.3
1990	-0.4
1991	-1.2
1992	1.5
1993	1.5
1994	1.3
1995	1.5
1996	1.4
1997	1.4
1998	1.3
1999-2004	1.3
2005 and later	1.1

[a] The real earnings differential is the difference between wage growth and the change in the CPI.

SOURCE: Alternative II assumptions from the *1991 Annual Report of the Board of Trustees of the Federal Old Age and Survivors Insurance and Disability Insurance Trust Funds*, Social Security Administration, Washington, D.C., April 1991.

wage growth rate of 1.1. Actual wage growth rates are used during the 1979-1990 period. Given these aggregate rates, the hourly wage rates for each individual in the model are adjusted during each year based upon an analysis of Census Bureau data on patterns of wage growth. Rates of wage growth vary by age, sex, and whether or not the individual changed jobs during the year.

Job Change

The probability that an individual will change jobs is based upon an ICF analysis of Census Bureau data concerning job change patterns during 1979. Job change is modeled as a function of the age, part-time/full-time status and job tenure of each worker. These probabilities are assumed to remain constant over time.

Maternity Job Terminations

Women who have children often leave the labor force. In some instances, these women may re-enter the labor force and resume working for the same employer they had prior to having the child. In PRISM, we assume that a woman who has a child and leaves her job in the same year will become reemployed on the same job if: (1) the woman re-enters the labor force within five years of having the child; and (2) the woman became employed in the same industry she was in prior to having the child.

Industry Changes

PRISM assigns individuals to an industry of employment when they change jobs or enter the labor force. The industry assigned to these individuals varies with age, full-time/part-time status, and industry of prior job. As shown in table A.5, the model assumes that, over time, a higher proportion of workers are employed in the services industries and a lower proportion of workers are employed in the manufacturing industry. These industry composition estimates are based upon November 1989 BLS projections for the 1989-2000 period. After 2000, industry composition is assumed to remain constant.

Pension Coverage Assumptions

For each job individuals have during the simulation, PRISM determines whether they are covered by a retirement plan and assigns covered workers to actual pension plan sponsors in the ICF Retirement Plan Provisions Data Base. Coverage rates are assumed to remain constant after 1988. The key assumptions are presented below.

Pension Availability

As workers change jobs or enter the labor force during the simulation, retirement plan availability is simulated using availability rates reported for job changers and labor force entrants in the May 1979 CPS. The model is further constrained to replicate availability rates reported in the May 1988 CPS pension supplement taking into account adjustments for excluded categories of workers. These availability rates vary by the individual's industry of employment, full-time/part-time worker status, age, and real wage

TABLE A.5

PERCENT DISTRIBUTION OF WORKERS BY INDUSTRY OF EMPLOYMENT ASSUMED IN PRISM FOR SELECTED YEARS

Industry	1980	1982	1984	1988	2000 & After
Mining	0.89%	0.95%	1.30%	0.61%	0.52%
Construction	4.53	4.20	4.44	5.19	5.17
Manufacturing	20.78	19.08	18.73	18.51	15.81
Transportation	5.02	5.03	5.32	5.36	5.12
Trade	18.71	19.24	19.28	18.72	19.28
Finance	5.09	5.32	5.38	6.37	6.42
Service	17.55	18.50	18.50	20.75	24.32
State & Local	12.96	12.96	12.61	12.32	11.70
Federal	3.28	3.28	3.26	2.93	2.78
Self Employed	9.55	9.85	9.63	7.56	7.48
Agriculture	1.64	1.65	1.55	1.68	1.40
Total	100.00%	100.00%	100.00%	100.00%	100.00%

SOURCE: Lewin/ICF estimates based upon Valerie Personick, "Industry Output and Employment: A Slower Trend for the Nineties," *Bureau of Labor Statistics' Monthly Labor Review*, November 1989.

rate. The availability rates assumed for 1979, 1983, and 1988 are presented in table A.6[2].

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[2] Note that rates described here are for the percent of workers whose employer offers a pension plan for any of the employer's employees. Plan rules that limit availability of pension coverage for employee characteristics such as part-time status, age, and service are applied after a plan is assigned to a worker. As a consequence, the numbers shown in Table A.6 on plan availability are higher than traditional estimates of pension coverage.

TABLE A.6

PENSION AVAILABILITY ASSUMPTIONS

Industry	Pension Availability Rate		
	1979	1983	1988
Federal Government	.91	.91	.94
State & Local Government	.86	.81	.90
Mining	.79	.72	.71
Manufacturing	.75	.69	.74
Transportation	.72	.72	.70
Finance	.66	.66	.73
Construction	.42	.40	.39
Trade	.41	.44	.46
Services	.41	.45	.51
Agriculture	.18	.21	.23
Self Employed	.14	.14	.21

SOURCE: Note that availability rates are not equal to coverage rates (see text). Availability rates for 1979 were derived from an ICF analysis of the May 1979 Current Population Survey. Availability rates for 1983 are based on an ICF analysis of the May 1983 EBRI/HHS CPS Pension Supplement. Availability rates for 1988 are based on Lewin/ICF analysis of the May 1988 CPS Pension Supplement.

Note that rates described here are for the percent of workers whose employer offers a pension plan for any of the employer's employees. Plan rules that limit availability of pension coverage for employee characteristics such as part-time status, age, and service are applied after a plan is assigned to a worker. As a consequence, the numbers shown in Table A-6 on plan availability are higher than traditional estimates of pension coverage.

Impact of 1986 Tax Reform Act (TRA) on Pension Coverage

Internal Revenue Service (IRS) pension plan non-discrimination rules that became effective in 1989 stipulate that, in general, no more than 30 percent of a plan sponsor's employees can be excluded. Previously, employers could legally exclude up to 44 percent of their employees from the plan.[3] The impact of this provision was modeled by estimating the number of persons in each industry who were not participating in a pension plan even though: (1) their employers sponsor a pension plan; and (2) they appear to meet the most restrictive age and service criteria allowed under ERISA (i.e., age 25 with at least 1,000 hours worked over a period of one year). In the model, participation rates for each industry are increased starting in 1989, so that no more than 30 percent of these individuals are ineligible for their employer's plan. All employers are assumed to absorb the costs of compliance with TRA's nondiscrimination rules.

Plan Assignment

Individuals are assigned to plan sponsors in the ICF Retirement Plan Provisions Data Base in proportion to the number of individuals actually covered by that plan sponsor. PRISM assigns individuals to plans by industry, firm size, Social Security coverage status, union coverage status, multi/single employer plan status, and hourly/salary worker status. In addition, individuals are assigned only to plans which are consistent with the characteristics of the plan the individual reported he or she was covered by in the May 1979 CPS. To do this, the model takes into account the individual's reported participation and vesting status as well as plan contribution requirements and participation in a supplemental plan.

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[3] The Tax Reform Act required that plans satisfy at least one of the following requirements: (1) the plan benefits at least 70 percent of all non-highly compensated employees; (2) the plan benefits a percentage of non-highly compensated employees which is at least 70 percent of the percentage of highly compensated employees benefiting under the plan; or (3) the average benefit percentage for non-highly compensated employees is at least 70 percent of the average benefit percentage for highly compensated employees.

Social Security and the Retirement Decision

The model simulates the acceptance of early, normal, and late retirement benefits from both pension plans and Social Security. Current Social Security law (including the 1983 amendments which increased the age at which unreduced benefits will be available) is assumed to be in place throughout the simulation. The important assumptions in the retirement decision are summarized below.

Social Security Benefit Acceptance

PRISM simulates the age at which individuals start to receive Social Security benefits. These benefit acceptance rates vary by the age and sex of the individual. The rates were derived from Social Security benefit receipt data by age and sex during 1980. PRISM also assumes that eligible individuals age 62 or over will automatically accept benefits if they are disabled or unemployed or receiving an employer pension. These assumptions lead to an increase in Social Security early retirement, because the number of individuals receiving pensions will increase over time in the simulations.

Social Security Survivors' Benefits

Individuals are simulated to accept Social Security survivors' benefits in the first year they are eligible.

Employer Pension Benefit Acceptance

PRISM determines when an individual is eligible to accept employer pension benefits and then simulates the decision to accept the benefit. Benefit acceptance rates were developed by ICF based upon an analysis of Census Bureau data on pension benefit recipients.

Impact of Eliminating Age 70 Mandatory Retirement

Prior to 1987, employers could legally require workers to retire when they reached age 70. Legislation passed in 1986 made such regulations illegal for most employers. All plans in the ICF Retirement Plan Data Base were modified to eliminate mandatory retirement beginning in 1987. The BLS labor force participation projections take into account the expected impact of the elimination of mandatory retirement.

Acceptance of Deferred Vested Benefits

Individuals who are vested and leave their job prior to their eligibility for early or normal retirement receive a deferred vested benefit. These benefits are assumed to go into pay status when the individual reaches the plan's normal retirement age.

Employer Pension Plan Assumptions

PRISM simulates the size of the benefit individuals will receive from each pension plan in which they earn a benefit during the simulation. PRISM uses the actual provisions of the plan to which the individual was assigned to determine each individual's eligibility and benefit amount. In general, pension plan provisions are assumed to remain unchanged over time except in instances where plan rules must be changed to be in compliance with the Retirement Equity Act of 1984 (REA) and/or the Tax Reform Act of 1986. The following assumptions are used:

Benefit Formulas

The benefit formulas in defined benefit plans are indexed to changes in wages for "flat" and "unit" benefit formulas.[4] Defined contribution plan salary bend points are also indexed to wage growth. Final pay-defined benefit and all other parts of defined contribution plan formulas are held constant. No changes in participation, vesting, or other plan provisions are assumed except where required by REA or the Tax Reform Act of 1986.

Impact of REA on Participation Rules

REA mandated that starting in 1985, the minimum age requirement for participation would be reduced from 25 to 21 and that service between the ages of 19 and 22 would be considered for determining vesting. Starting in 1985, the provisions of private plans which were not already in compliance with these provisions are modified.

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[4] These plans define their benefits in nominal dollars.

Impact of the Tax Reform Act of 1986 on Vesting

The Tax Reform Act required private sector single-employer plans to vest benefits at least as rapidly as under the following two schedules: (1) full vesting upon completion of five years of service, or (2) 20 percent vesting after the completion of three years of service and 20 percent more for each subsequent year.[5] Starting in 1989, the provisions of any private single employer plans which were not already in compliance with these provisions are modified to be in compliance.

Limits on Social Security Integration

Private sector plans which link their benefit formula to the Social Security wage base or Social Security benefit amounts ("integrated plans") are required to limit their integration formulas. Although previous IRS regulations placed restrictions on how plans may integrate benefits, some low-wage workers had their pension benefits severely reduced or completely eliminated through integration. The Tax Reform Act retained and simplified IRS regulations on integration. In addition, the Act establishes additional restrictions on integration that apply separately to three types of integrated plans:

For defined benefit excess/step-rate plans (plans which calculate pension benefits at different rates on earnings above and below specified levels), the rate at which benefits are provided for pay up to the integration level of a plan may not be less than 50 percent of the rate at which benefits are provided in excess of that level. In addition, the integration level may not be more than the Social Security wage and benefit base.

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[5] An individual is "vested" in his/her plan when he or she has earned a nonforfeitable right to receive plan benefits.

For defined benefit offset plans (plans where pension benefits are reduced by a stated percentage of Social Security benefit), the offset may not reduce a participant's benefits by more than 50 percent.

For defined contribution plans (plans where the employer contributes a specified amount but does not guarantee a specified benefit), the provisions are similar except that they apply to the rate of employer contributions. In addition, for defined contribution plans, the rate for pay in excess of the integration level may not exceed the rate for pay up to that level by more than the OASDI tax rate.

Cost of Living Adjustments for Pensions

The model assumes that benefits for 28 percent of private plan beneficiaries with defined benefit plans will be indexed at 60 percent of the rate of inflation up to a maximum of 4 percent per year. All early and normal retirement benefits from the Civil Service Retirement Plan are assumed to increase at the annual rates of inflation shown in table 3. Participants in the Federal Employee Retirement System (FERS) receive a COLA based on the maximum of 2 percent or 1 percent less than the CPI at age 62 or after. Benefits of three-quarters of State and local government benefit recipients are assumed to increase at 57 percent of the rate of inflation up to a maximum of 3 percent each year. These assumptions are based upon a BLS study of medium and large firms. None of these plans are assumed to index deferred vested benefits.

TABLE A.7

PROBABILITIES THAT MARRIED INDIVIDUALS WILL CHOOSE TO ELECT THE JOINT AND SURVIVOR'S OPTION, BY SIZE OF PENSION BENEFIT

	Probability of Choosing the Post-Retirement Joint and Survivor's Option	
Pension Benefit Size (In 1980 dollars)	Before REA	After REA
Less than $3,000	25%	75%
$3,000 or over	65%	80%

SOURCE: Lewin/ICF assumptions.

Post-Retirement Survivors' Benefit Option

Table A.7 presents the assumptions used to determine which married individuals choose to elect the post-retirement joint and survivor's option. Because REA mandated that, starting in 1985, spousal consent is required to waive survivor's benefit coverage, the model assumes that the rate of joint and survivor election will increase after the Act is implemented. Individuals who accept the post-retirement survivor's option are assumed to receive a 50 percent joint and survivors' annuity. This annuity provides a surviving spouse with a benefit equal to half of that received by the deceased individual while living.

Pre-Retirement Survivors Option

Many plans automatically provide individuals with pre-retirement survivors coverage. In these plans, all individuals are assumed to "elect" the pre-retirement survivors option. In the other defined benefit plans, the model assumes 60 percent of married individuals will elect the pre-retirement survivors option. Because REA mandated spousal consent for waiver of the survivors coverage, the model assumes that 85 percent of all married individuals elect this option after REA is implemented.

Vested Beneficiary Survivors Benefits

As mandated by REA, pre-retirement survivors coverage was extended to spouses of individuals who receive vested benefits. Thus, the model simulates survivors benefits for spouses of vested beneficiaries who die between the time they leave the job and the date the benefits would have gone into pay status. In all instances the survivors benefit is assumed to be a 50 percent joint and survivors annuity.

Maternity

Under REA, workers who leave a pension plan may return to the job and retain their prior years of service for participation and vesting status provided the break in service was less than or equal to the greater of: (1) five years; or (2) the number of years of service prior to the break. Although both men and women may benefit from this provision, it was intended to assist women who leave their jobs for maternity. Because reemployment by the same employer is modeled in maternity cases only, this rule is applied only to women in the model who have children. In addition, due to further REA liberalizations in crediting service for maternity cases, working women who have a child are assumed to receive one year of credited service for the year the child is born, regardless of the number of hours they worked.

TABLE A.8

SAVINGS PLAN PARTICIPATION ASSUMPTIONS

Hourly Wage Level[a]	Employer Match Rate[b]		
	Low	Medium	High
Less than $4	20%	25%	30%
$4-$7	40%	50%	60%
More than $7	60%	75%	90%

[a] Earnings level in 1980 dollars.

[b] Plans that match one dollar of employee contribution with less than fifty cents of employer contributions are low match plans. Plans that match one dollar of employee contributions with fifty to ninety-nine cents are medium match plans. Plans that match one dollar of employee contributions with one dollar or more of employer contributions are high match plans.

SOURCE: Lewin/ICF assumptions.

Participation in Savings, Thrift, and 401(k) Plans

Table A.8 summarizes the assumptions on participation in supplemental thrift, savings, and 401(k) plans for those individuals who are eligible to participate in them. The participation rates are a function of a worker's wage level and the employer matching rate.

Employee Contributions

In plans which require employee contributions as a condition for plan participation, the model assumes individuals contribute the amount required to obtain the maximum employer contribution.

Lump-sum Payments: Defined Contribution Plans

Individuals who are vested in a defined contribution plan and change jobs are selected to roll their lump-sum payment into an IRA on the basis of lump-sum rollover data obtained from an analysis of the May 1983 EBRI/HHS CPS Pension Supplement. (See table A.9.)[6] The likelihood of a rollover varies by age, marital status, benefit level, and income. Among individuals age 55 or older, all lump-sums over $1,750 are rolled over into an IRA and saved for retirement.

Lump-sum Payments: Defined Benefit Plans

Vested DBs of $3,500 or less. All persons under the age of 60 with a present value of $3,500 or less in their defined benefit plan are assumed to receive a lump-sum distribution at separation that is then used for consumption. Persons age 60 and over are always assumed to receive an annuity; they do not elect to receive a lump-sum distribution.

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[6] This analysis was conducted by Larry Atkins. Current law permits individuals to "roll-over" any lump-sum pension payment into an IRA in order to defer payment of taxes on this income until these benefits are drawn upon as income after reaching age 59½.

TABLE A.9

PROPORTION OF DEFINED CONTRIBUTION LSDs THAT ARE ROLLED OVER TO AN IRA

Earnings (1983 $s)	Not College Graduate									
	Under Age 30		Age 30-44		Age 45-54		Age 55-61		Age 62 or more	
	<$3,500	$3,500+	<$3,500	$3,500+	<$3,500	$3,500+	<$3,500	$3,500+	<$3,500	$3,500+
<$20,000	0.019	0.000	0.013	0.050	0.028	0.143	0.000	1.000	1.000	1.000
$20,000+	0.024	0.000	0.041	0.091	0.105	0.211	0.000	1.000	1.000	1.000
	College Graduate									
<$20,000	0.037	0.000	0.015	0.061	0.075	0.364	0.000	1.000	1.000	1.000
$20,000	0.040	0.154	0.051	0.178	0.120	0.450	0.000	1.000	1.000	1.000

SOURCE: Lewin/ICF analysis of May 1988 Current Population Survey Pension Supplement Data.

Vested DBs above $3,500. For persons who leave a job before retirement and have a present value of over $3,500 in vested benefits in a defined benefit plan, the percent who consume their lump-sum distribution rather than reinvest it differs by age. It is assumed that 9 percent of separated vesteds under the age of 55 consume their defined benefits and 5 percent of those 55 to 64 do so. The probabilities were estimated from: (1) data on the proportion of separated vested participants who receive lump-sum distributions and (2) CPS data for 1987 and 1988 on the proportion of individuals who consume their lump-sum distribution.[7] All persons age 65 and over are assumed to receive an annuity.

Impact of Tax Reform Act on Roll-Overs

The Tax Reform Act eliminated 10-year averaging, thus increasing individuals' incentives to roll-over into an IRA lump-sum distributions received from a pension plan. Individuals age 59½ or older are permitted to make a one-time election to use 5-year forward averaging for a lump-sum distribution which is not rolled-over into an IRA. Also, individuals attaining age 50 prior to January 1, 1986, may also make a one-time election to use 5-year averaging for a lump-sum distribution. The proportion of individuals who roll-over lump-sum distributions and save these assets for retirements was increased by 15 percent to model the impact of these provisions.

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[7] The assumption is based on three factors based on data from Hewitt and Hay Huggins surveys: (1) 30 percent of plans offer LSDs; (2) two-thirds of plans offer LSDs to separated vested participants; and (3) 75 percent of participants who are offered LSDs take them. This means that 15 percent of separated vestees receive lump-sum distributions [.3 x .67 x .75 = .15]. We then used the LSD numbers from the CPS for 1987-1988 to estimate that 60 percent of persons age 25-54 consume their distribution and 36 percent of those age 55-64 do. These percentages, multiplied by the 15 percent, yield the assumed amounts.

Lump-Sum Payments as Retirement Income

Individuals are assumed to draw upon their defined contribution lump-sum payments (those which were not cashed out) in the form of an annuity. This annuity is assumed to start at the earlier of: (1) the age they accepted Social Security benefits or (2) the year they first started receiving a defined benefit pension, but not earlier than age 55.

Individual Retirement Account Assumptions

PRISM models the accumulation of IRA savings. The assumptions used in this analysis are derived primarily from IRA participation data provided in the May 1983 EBRI/HHS CPS pension supplement. PRISM simulates the accumulation of IRA savings by individuals between 1973 and 1981 under the original IRA legislation, which limited eligibility to individuals not covered by an employer pension plan. In years after 1981, PRISM simulates IRAs under the Economic Recovery Tax Act of 1981 (ERTA), which extends eligibility for IRAs to include all workers including those covered by an employer pension plan. Beginning in 1987, we model the impact of the Tax Reform Act of 1986 on the maximum tax-deductible amount of contributions to IRAs for active participants in qualified pension, profit-sharing, stock-bonus, tax-sheltered annuity, or government plans.

PRISM simulates IRA accumulations by: (1) determining which individuals are eligible under the prevailing legislation in each year; (2) simulating which individuals will establish an IRA; and (3) simulating the amount of their contribution during each year.

We calibrated the assumptions so that they are consistent with 1983 estimates of: (1) the number of individuals participating in IRAs and (2) the amount of IRA assets accumulated. The key assumptions in our IRA simulations are summarized below.

IRA Adoption for Non-Covered Workers

Table A.10 summarizes the assumptions used in modeling the adoption of IRAs by non-pension-covered workers. These estimates do not include workers assumed to roll-over vested benefits into IRA arrangements. ICF estimated these adoption rates using May 1983 EBRI/HHS CPS pension supplement data on non-covered individuals establishing an IRA during 1982. These assumptions reflect expected annual adoption rates for new participants.

IRAs for Covered Workers

A separate set of IRA adoption probabilities were developed for individuals covered by a pension plan which apply only to 1982 (shown in table A.11). The 1982 probabilities reflect the impact of the 1981 Economic Recovery Tax Act. These higher rates were incorporated to reflect the large initial participation in IRAs in 1982. These probabilities were estimated using the May 1983 EBRI/HHS CPS pension supplement data on covered workers who established an IRA in 1982. In years after 1982, the IRA adoption rates for covered workers are assumed to be the same as for non-covered individuals (see table A.10), except as described below.

TABLE A.10

ANNUAL IRA ADOPTION ASSUMPTIONS FOR NON-COVERED WORKERS, BY AGE AND FAMILY EARNINGS LEVEL

Family Earnings Level	Age					
	25-34	35-39	40-44	45-54	55-59	60-65
Less than $15,000	0.24%	0.24%	0.48%	0.48%	0.72%	0.96%
$15,000-24,999	0.96	0.96	1.20	1.44	1.68	2.16
$25,000-29,999	1.20	1.32	1.44	2.40	2.40	3.60
$30,000-34,999	1.80	2.40	3.60	4.20	4.80	6.00
$35,000-49,999	3.60	3.60	4.20	4.80	6.00	8.40
$50,000 or More	6.00	6.00	6.00	6.00	12.00	12.00

SOURCE: Lewin/ICF estimates, based in part upon the May 1983 EBRI/HHS CPS pension supplement data.

IRA Contributions

Once an individual is selected to adopt an IRA, PRISM simulates his or her decision to contribute to the account for each year after the IRA is established. The model assumes that individuals contribute only if they are employed during the year. All individuals are assumed to contribute in the year the IRA is established. In succeeding years, individuals are randomly selected to contribute to their account based upon the probabilities presented in table A.12. These probabilities were estimated using May 1983

EBRI/HHS CPS pension supplement data on the number of individuals with IRA accounts who are currently contributing.

IRA Contribution Amount

The amount that individuals are assumed to contribute to their IRA in a given year varies with family income, age, sex, and marital status. If an individual is selected to contribute to an IRA, the model randomly selects the

TABLE A.11

IRA ADOPTION PROBABILITIES FOR COVERED WORKERS IN 1982 BY FAMILY INCOME AND AGE OF WORKER

Family Earnings Level	Age					
	25-34	35-39	40-44	45-54	55-59	60-65
Less than $15,000	4.0%	7.0%	4.0%	9.0%	13.0%	20.0%
$15,000-24,999	8.0	8.0	9.0	17.0	27.0	19.0
$25,000-29,999	9.0	14.0	16.0	23.0	30.0	47.0
$30,000-34,999	16.0	20.0	19.0	28.0	46.0	51.0
$35,000-49,999	16.0	27.0	31.0	43.0	46.0	45.0
$50,000 or More	35.0	43.0	48.0	57.0	70.0	63.0

SOURCE: Lewin/ICF estimates, based in part upon the May 1983 EBRI/HHS CPS pension supplement data.

TABLE A.12

PROBABILITIES OF CONTRIBUTING TO AN IRA IN A GIVEN YEAR ONCE SELECTED TO ADOPT AN IRA

Family Earnings Level (in $ 1982)	Pension Coverage Status	
	Covered	Not Covered
Less than $25,000	48.0%	60.0%
$25,000 or more	84.0	90.0

SOURCE: Lewin/ICF estimates, based in part upon the May 1983 EBRI/HHS CPS pension supplement data.

amount to be contributed based upon the distribution of IRA contributions reported in the May 1983 EBRI/HHS CPS pension supplement data for individuals in similar age, sex, income and marital status groups. The amounts of these contributions are indexed to real wage changes after 1983. The annual contribution is constrained not to exceed the maximum contribution allowed under the law. After 1986, the maximum contribution amounts specified in the law are indexed at 80 percent of the CPI over time (actual contribution limits are used for each year through 1986). Individuals who reported they had an IRA in 1979 were assumed to have an initial balance of $3,000 (in 1982 dollars) in their account.

Impact of Tax Reform Act of 1986

The Tax Reform Act modified the maximum tax deductible amount of contributions to IRAs for active participants in qualified pension, profit-sharing, stock-bonus, tax-sheltered annuity or government plans. Beginning in 1987, the full contribution amount up to the amount deductible under prior tax law (typically $2,000) is deductible for individuals with adjusted gross income under $25,000 ($40,000 for joint filers, $0 for married filing separately). The deductibility is phased out over the next $10,000 of AGI for the active participants. Anyone may make a non-deductible contribution to the extent that deductible IRA contributions are not allowed. The IRA deduction for all others is retained in its current form. Beginning in 1987, PRISM assumes that annual contributions to IRAs for pension plan participants are limited to the maximum deductible amount allowed for taxpayers at their income level (i.e., individuals will only contribute if the contribution is tax deductible).

Assets in Retirement

The model simulates the level of both housing and non-housing (financial) assets and the income from these assets for persons age 65 and over in four steps. The model (1) assigns assets to persons age 65 and over in 1979; (2) assigns assets to persons who reach age 65 after 1979; (3) adjusts assets during retirement; and (4) simulates income from assets.

Asset Assignment in 1979

First, in 1979, each family unit age 65 and over is assigned a level of assets. This level of assets is based upon a distribution of assets from an analysis of the 1984 Survey of Income and Program Participation (SIPP) Wave 4. The model assigns individuals in PRISM the level of assets of similar individuals from the 1984 SIPP on the basis of age, marital status, income level, and pension status. Actual records from the 1984 SIPP, adjusted for inflation and under-reporting, are assigned to individuals simulated in PRISM.[8] This allows assets to vary within different demographic subgroups, rather than assuming each household in a given subgroup has the same level of assets. The model imputes the distribution of the level of assets for two types of assets: home equity and all other financial assets. For persons age 65 and over in 1979, the level of net assets assigned is deflated by a factor to account for the growth in assets from 1979 to 1984. Assets in 1984 are deflated by a factor of 1.431 to account for the rate of change in the CPI from 1979 to 1984.

Asset Assignment After 1979

A similar procedure assigns a level and distribution of assets to individuals who reach the age of 65 after 1979. These probabilities are based upon the distribution and level of assets of persons who were age 65-69 in 1984 in SIPP. Before 1984, assets are reduced by a factor equal to the actual rate of change in the CPI over the time period. The level of assets from 1984 to the present is increased by the actual rate of change in the CPI, and then by the projected rate of change in the CPI assumed under the Alternative II assumptions.

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[8] Data on financial assets collected in SIPP are under-reported for all households (elderly and non-elderly) by 33 percent compared to Federal Reserve Board Balance Sheet data for the household sector. See "Household Wealth and Asset Ownership, 1984" *Current Population Reports: Household Economic Studies*; Series P. 70, No. 7, July 1986. A Lewin/ICF analysis of SIPP asset income for elderly families compared to asset income reported on tax returns by the IRS found that comparable asset income reported on SIPP is 62 percent of asset income reported in the IRS data. Under-reporting was a greater problem for higher income groups. Therefore, financial assets from SIPP were increased by a factor based on family income.

Saving and Dissaving During Retirement

Once assigned a level of assets, the assets of elderly families are adjusted over time to reflect that some elderly save and some dissave during retirement and that real estate generally appreciates. The value of net housing assets is assumed to increase 1.6 percentage points faster than the CPI. Based on a review of the savings literature, elderly families are assumed to save/dissave as follows:

- Ten percent save at a real rate of 2 percent annually (financial assets increase 2 percentage points higher than the rate of change in the CPI).
- Twenty percent neither save nor dissave in real terms (financial assets increase at the rate of change in the CPI).
- Seventy percent dissave at a real rate of 4 percent annually (financial asset levels increase 4 percentage points less than the rate of change in the CPI).

Some individuals who use long-term-care services will use their assets to pay for these services.[9] This will accelerate this assumed rate of decrease. If an individual dies, his or her spouse receives all assets.[10]

Income from Assets. Finally, the model calculates an assumed level of income from non-housing assets for family units age 65 and over. The model assumes that income from non-housing assets is 7 percent prior to 1989, 6.5 percent from 1989 to 1994, and 6 percent in 1995 and after.

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[9] If an individual in a nursing home does not have sufficient income to cover the cost of his or her care after adjustments for spousal maintenance and other provisions, financial assets are drawn upon to pay for these services.

[10] Because we do not have data on the expected death benefits of life insurance policies, we assume that the spouses of deceased persons do not receive life insurance benefits.

Supplemental Security Income Program Benefits

PRISM simulates the benefits from the Supplemental Security Income (SSI) program in three steps. The model (1) determines which families and individuals are eligible for SSI benefits using the SSI assets test, (2) estimates the annual benefit they would be entitled to receive from both the Federal and State SSI programs, and (3) estimates which eligible families and individuals participate in the program. The SSI program is simulated in PRISM as described below.

Program Filing Unit

To determine the size of program benefits, elderly individuals are first formed into program "filing units." Each single individual forms one filing unit. Both members of a married couple are treated as a single filing unit, even if one member of the couple is ineligible (i.e., less than age 65). An individual under age 65 is assumed to be potentially eligible for SSI benefits for disabled persons if they are simulated to be disabled under the SSA definition of disability.

Asset Eligibility

From 1979-1983, to be eligible for SSI, individuals must have countable assets no greater than $1,500, for single individuals and $2,250 for married couples. This includes stocks, bonds, countable assets, cash, personal effects in excess of $1,500, and other non-housing assets. Home equity is not included in countable assets. As mandated by the Deficit Reduction Act of 1984 (DEFRA), beginning in 1984, the asset limit for single individuals increases by $100 and the limit for married couples increases by $150 each year until 1989, when they are equal to $2,000 and $3,000, respectively. After 1989, the asset limits are assumed to increase at 50 percent of the rate of increase in the CPI to reflect historical trends in the increase in SSI resource limits. The model determines asset eligibility by comparing the SSI program filing unit's financial assets, estimated as discussed in the prior section, to the appropriate asset limit.

Benefit Computation

PRISM calculates net countable income for SSI filing units by summing eligible individuals' monthly countable incomes and subtracting allowable deductions. Countable incomes include eligible individuals' cash income from earnings, Social Security, pensions, assets, and income of an ineligible spouse. Allowable deductions include: (1) $20 of unearned income; (2) the first $65 of earnings plus 50 percent of earnings above $65; and (3) earnings income of an ineligible spouse up to one-half the maximum monthly Federal benefit for a couple. The benefit amount is equal to the positive difference between the maximum monthly benefit and this monthly net income value. The maximum benefit levels vary by marital status, living situation, the presence of an ineligible spouse, and State of residence (see below).[11]

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[11] Each individual's State of residence is assumed to remain the same as reported in the May 1979 CPS throughout the simulation.

State Supplementation

Forty-one States also provide some form of supplementary SSI benefit to elderly families. However, only 26 of these States provide a supplement to most or all of those who participate in the Federal SSI program, while the remaining 15 States that supplement benefits do so for only a limited number of elderly facing unusual hardships (e.g., extraordinary expenses such as fire- or moving-related costs). PRISM estimates supplemental benefits only for the 26 States which provide supplements to most or all eligible individuals. Supplemental payments in these 26 States account for about 90 percent of all State supplemental benefits. These 26 State programs, all of which are administered by the Federal Government, use the same benefit formula as the one described above, with the exception that the maximum benefit is higher in these States. We assume that the State supplement amounts are fully indexed to inflation by the CPI.

Participation

Not all eligible individuals chose to participate in the SSI Program. Thus, only a portion of those simulated to be eligible for SSI are selected to receive these benefits. The SSI participation rates used in PRISM were estimated so as to replicate administrative data on the number of aged SSI recipients by marital status, family income level, and size of potential benefit.

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